



PEACE, PROSPERITY AND
REGIONAL INTEGRATION

Provision of ICPAC's East African seasonal bulletins and outlooks

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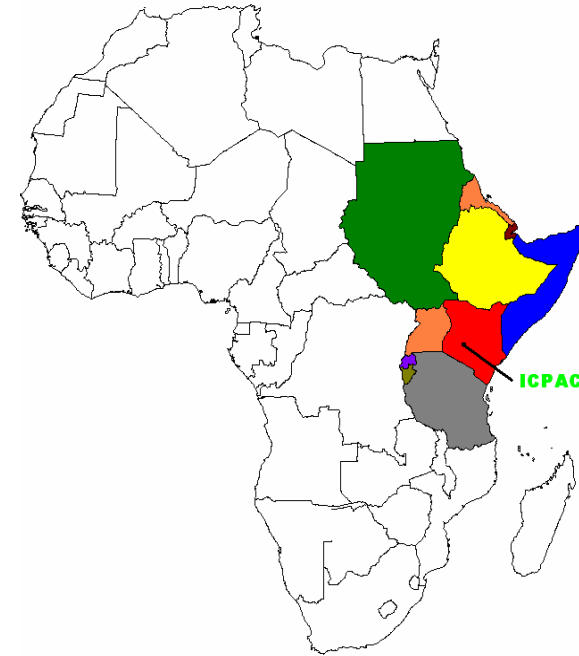
PEACE, PROSPERITY AND
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Outline

- Overview of ICPAC
- The GHA Climate Outlook Forum (COF) and Seasonal bulletins
- Target key User Community and communication Methods
- Making the COF Meet the Water Sector User Needs
- Challenges in establishing the system
- Regional challenges facing inclusion of greater hydrological information
- Best practice and top barriers

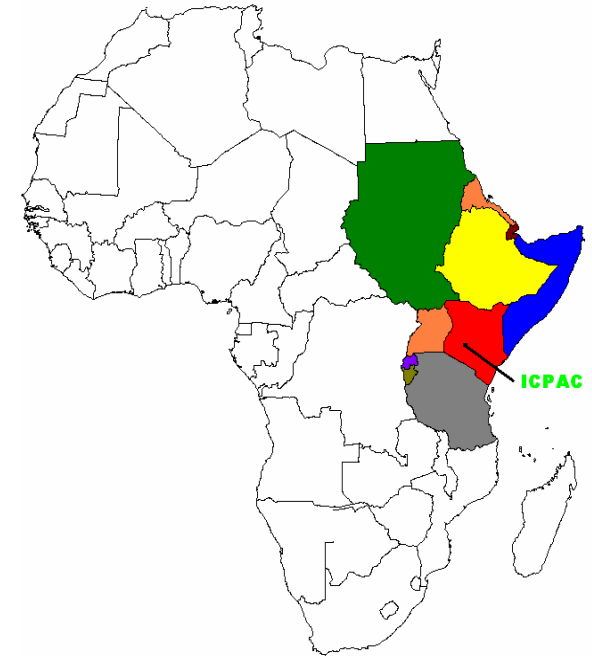
Overview of ICPAC

- DRM (**Drought Monitoring Centre**) was established in 1989 under the initiative of WMO and UNDP for 24 countries in the eastern and southern Africa sub-region for regional Drought Monitoring.
- In 2003 IGAD ratified the decision to absorb DMC as an autonomous specialized Institution of IGAD with the change of name of DMC to **ICPAC (IGAD climate prediction and applications centre)**
- ICPAC has 8 members states plus 3 beneficiary states : **Burundi, Rwanda and Tanzania**
- **GREAT HORN OF AFRICA (GHA)** represent the 11 ICPAC's services benefiting countries.



ICPAC Mission

- The Mission of ICPAC is to provide climate information and early warning for applications in support of sustainable development in the Greater Horn of Africa region.
- To strengthen collaboration between NMHSs on issues related to observations and data management;
- To develop a broad-based regional climate prediction and early warning systems.

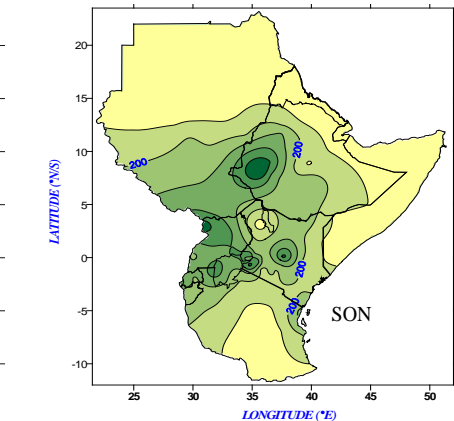
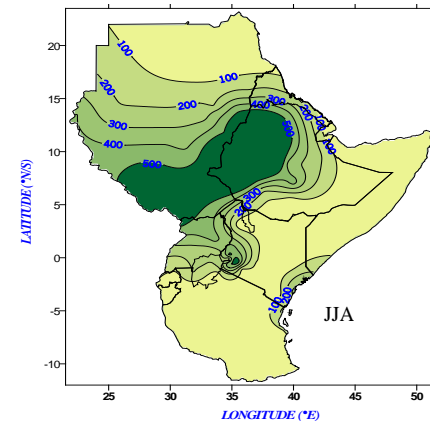
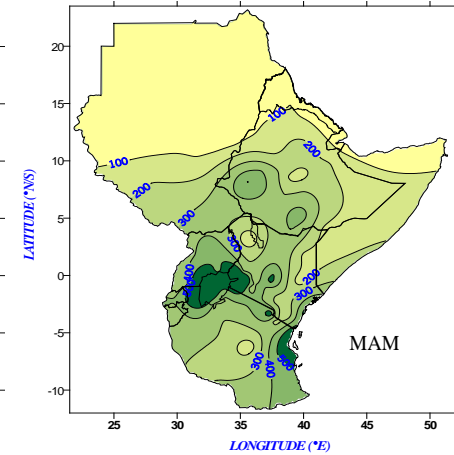
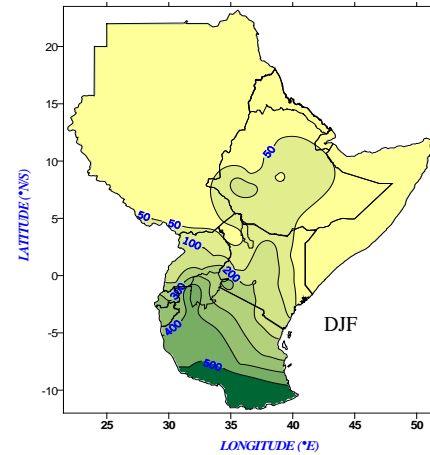
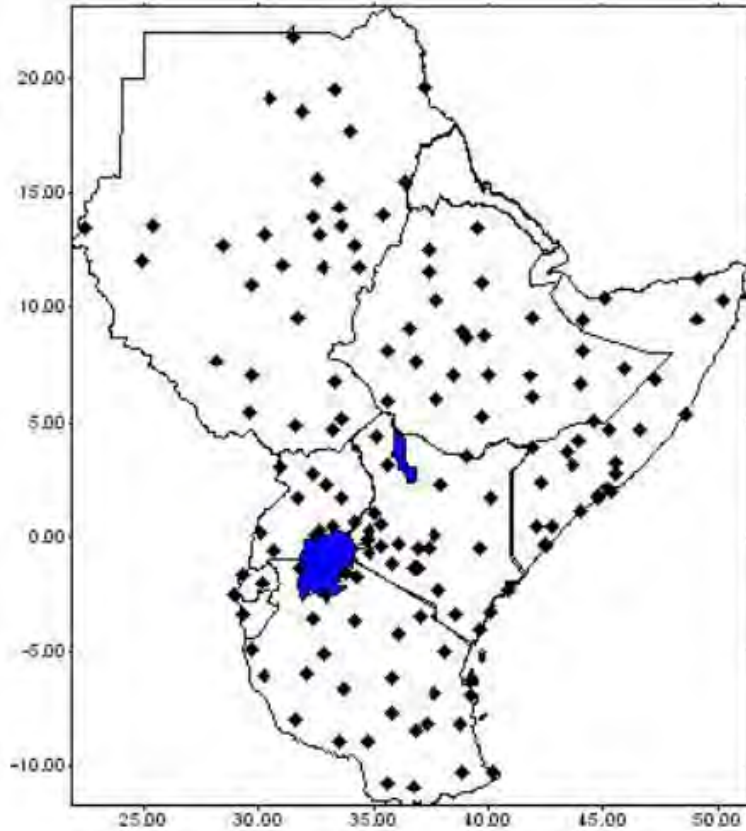


MAIN ACTIVITIES of ICPAC

- Monitoring of climate stress on 10 day, monthly and seasonal time scales;
- Climate prediction on 10 day, monthly and seasonal time scales;
- Modeling of climate variability and change;
- Generating products tailored for sector specific applications;
- Assessing climate related socio-economic impacts;
- Training of regional climate scientists in monitoring, diagnostics and prediction;
- Organization of regional climate outlook forums;
- Training of users in interpretation and use of climate products.
- Pilot application projects to demonstration benefits of climate early warning advisories and community adaptation to climate variability/change .

MAIN ACTIVITIES of ICPAC

Climate Monitoring



Distribution of GHA
Climatological stations (113)

Climate Atlases

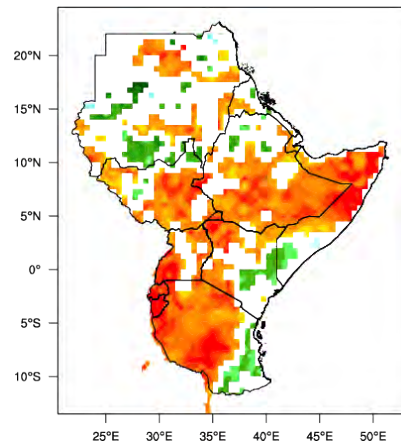
ICPAC's seasonal outlooks and bulletins

The GHA Climate Outlook Forum

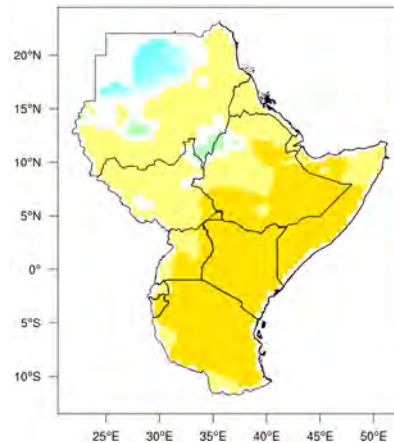
- It is done 3 times in a year
 - February- Long Rain Season over Equatorial region
 - May- Main rainy season over Countries North of Equator
 - August – Short Rain Season over Equatorial and main rainy season south of Equator
- Climate Scientist from the region and Global Centres meet for 5 days to arrive at a forecast
- 2 days meeting on Consensus, discussion of the likely impact and necessary actions

Some of the Inputs for Producing forecasts

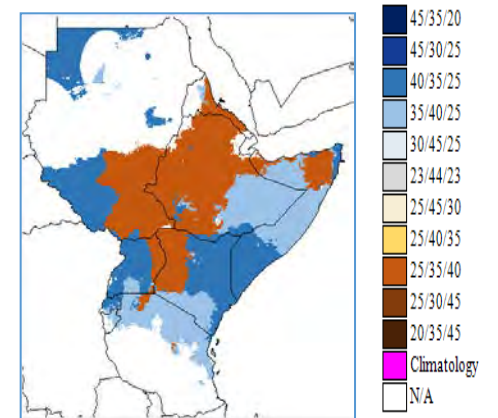
6 GCMs



SST

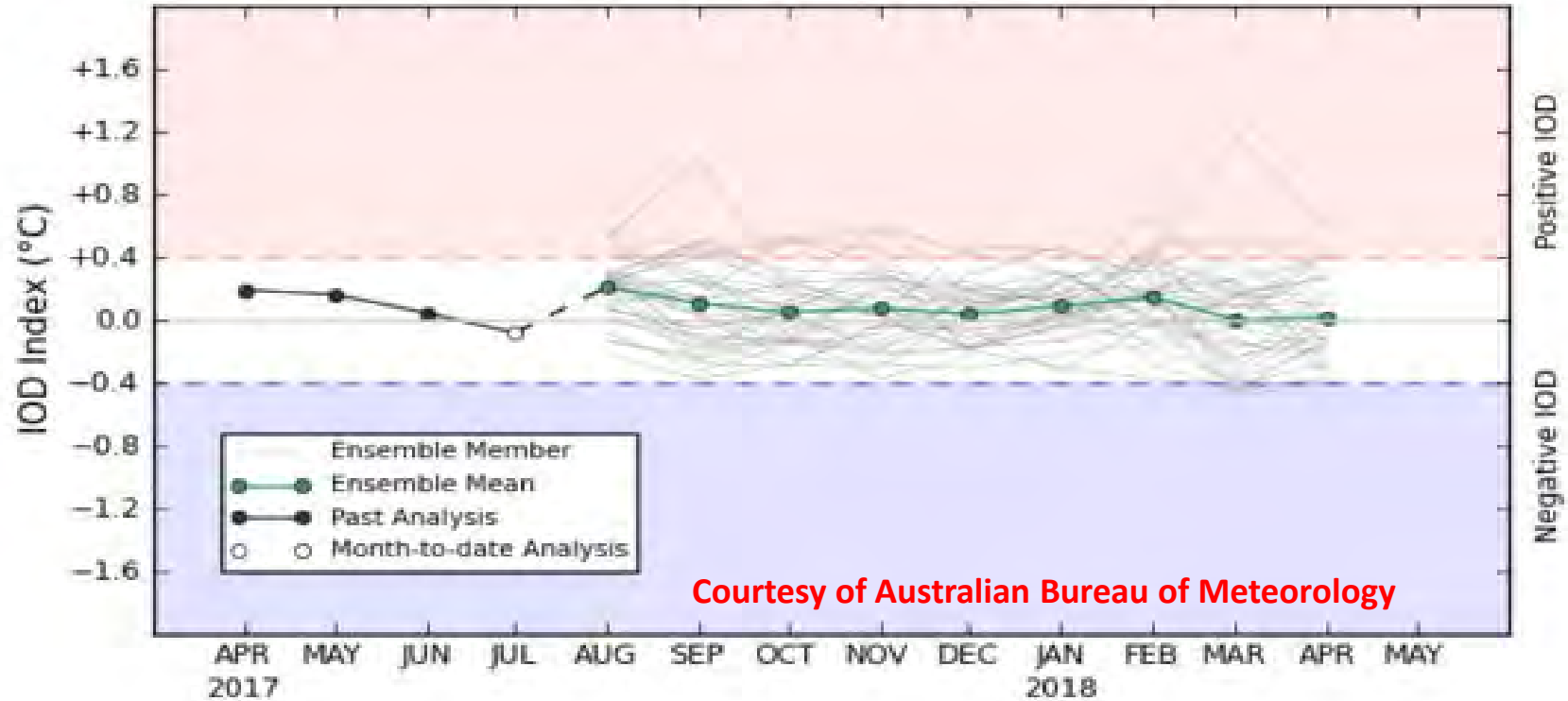


GeoCOF



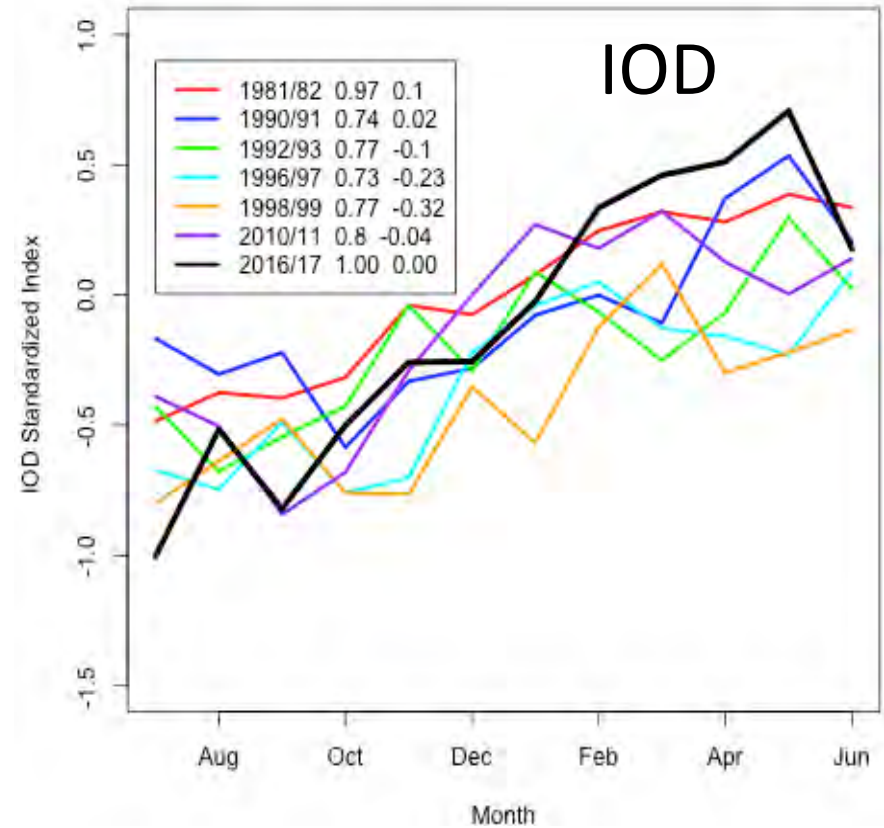
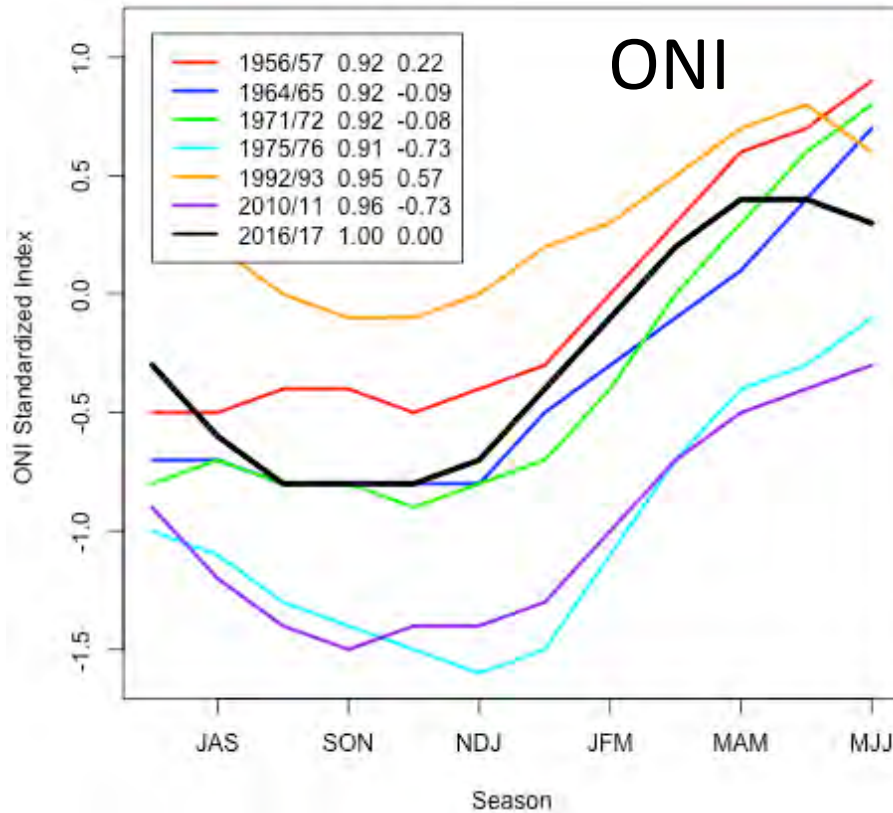
INDIAN OCEAN DIPOLE MODE FORECAST

Forecast starts 30 July 2017



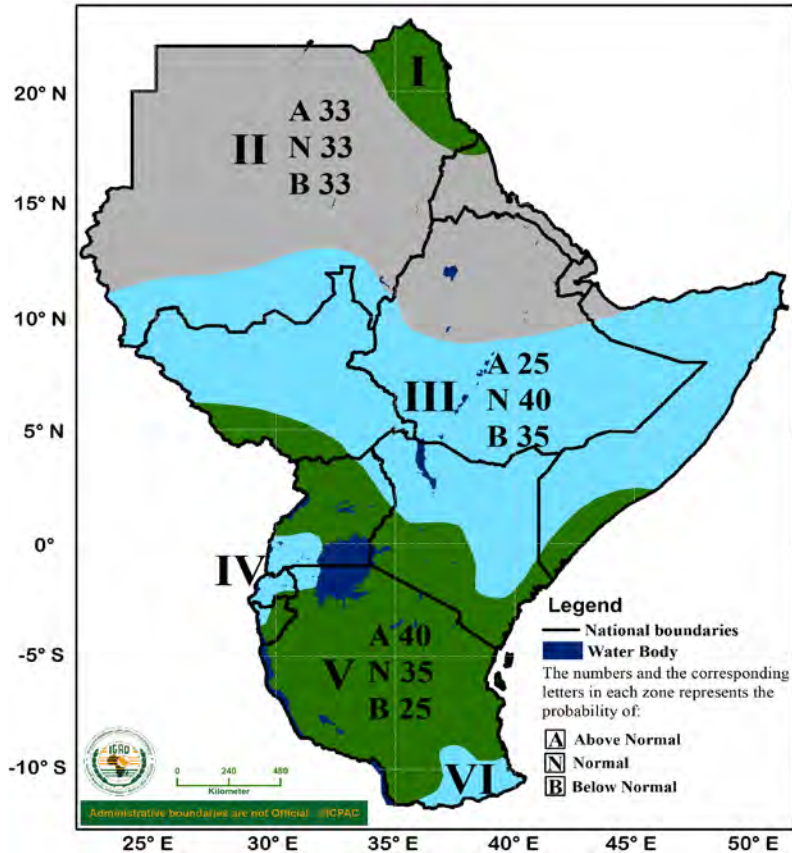
IGAD CLIMATE PREDICTION AND APPLICATIONS CENTRE

Analogue



IGAD CLIMATE PREDICTION AND APPLICATIONS CENTRE

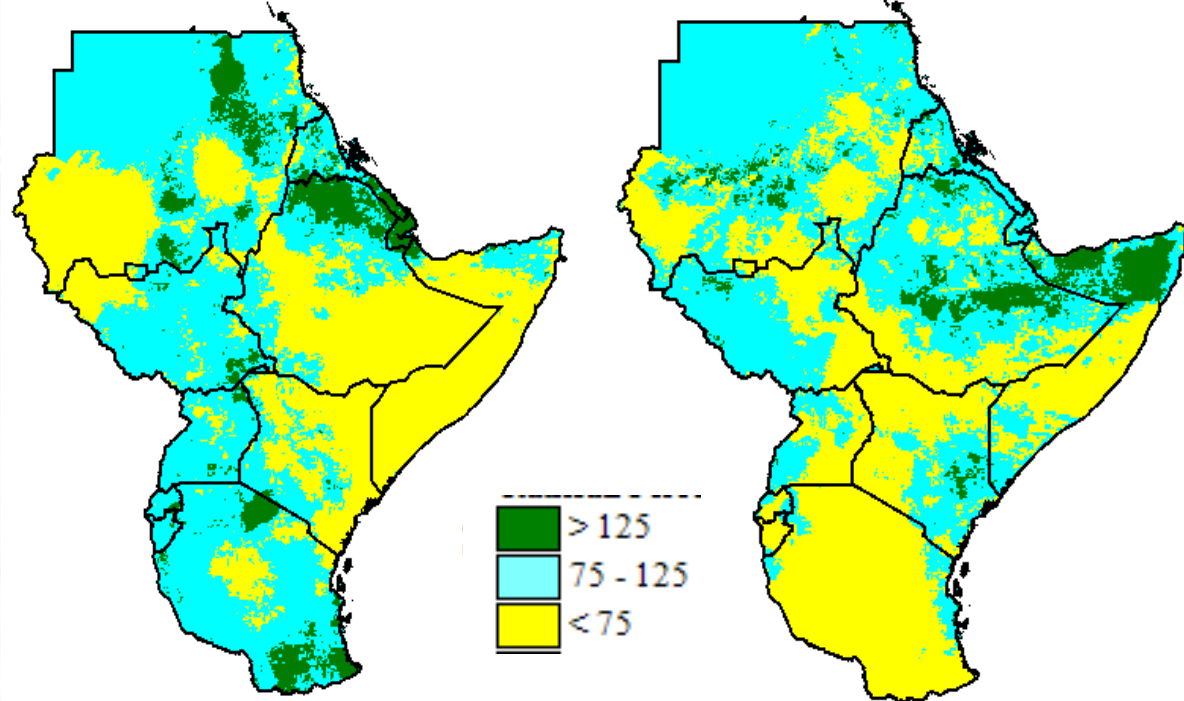
CONSENSUS OND 2017 RAINFALL OUTLOOK



Analogue Years

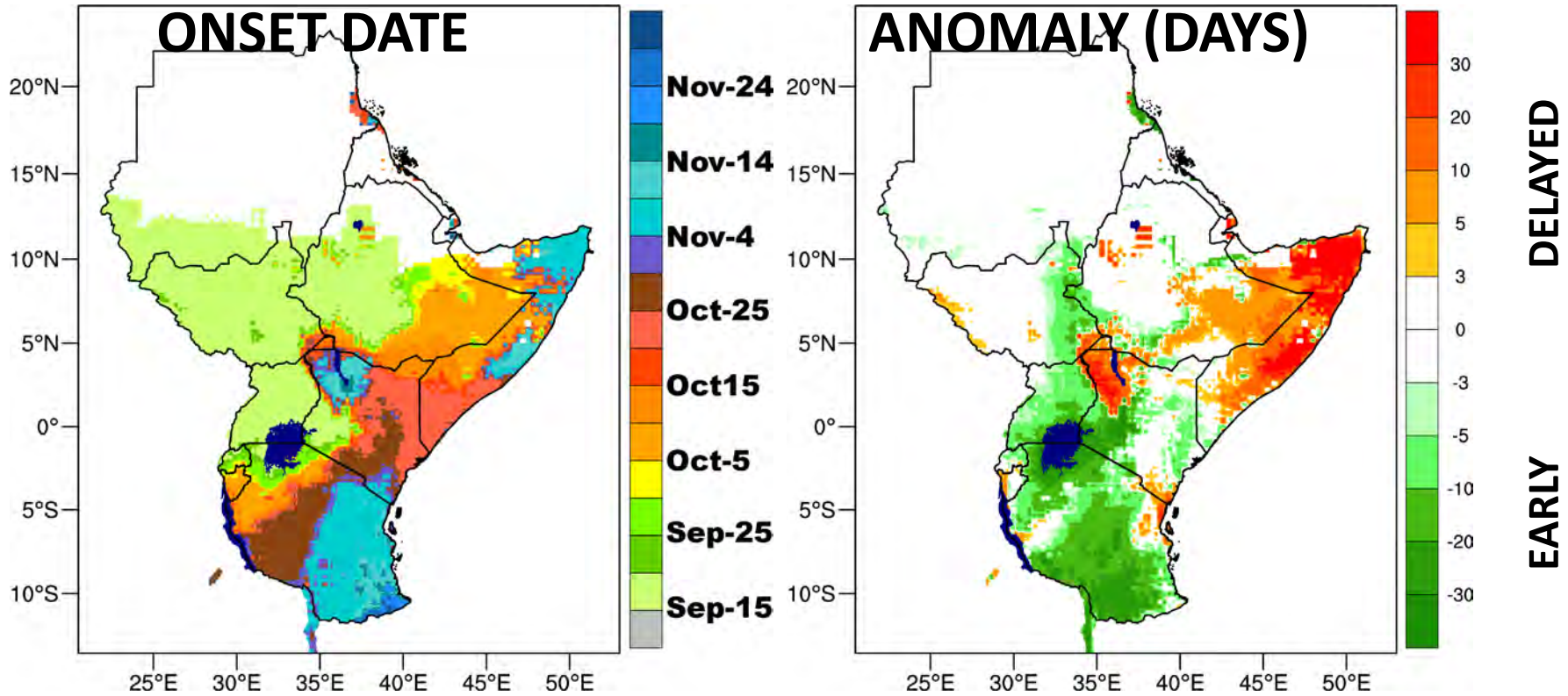
1991

1993



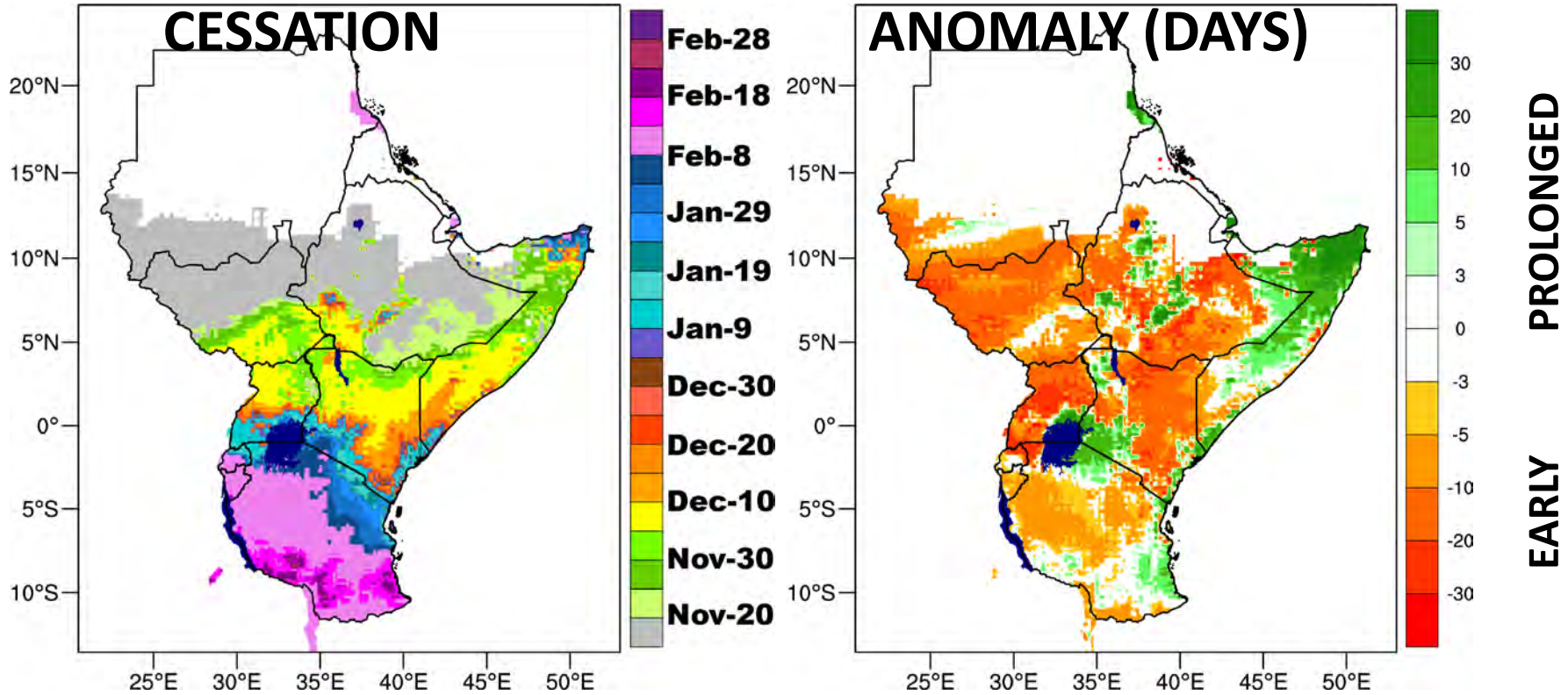
IGAD CLIMATE PREDICTION AND APPLICATIONS CENTRE

OND 2017 seasonal characteristics



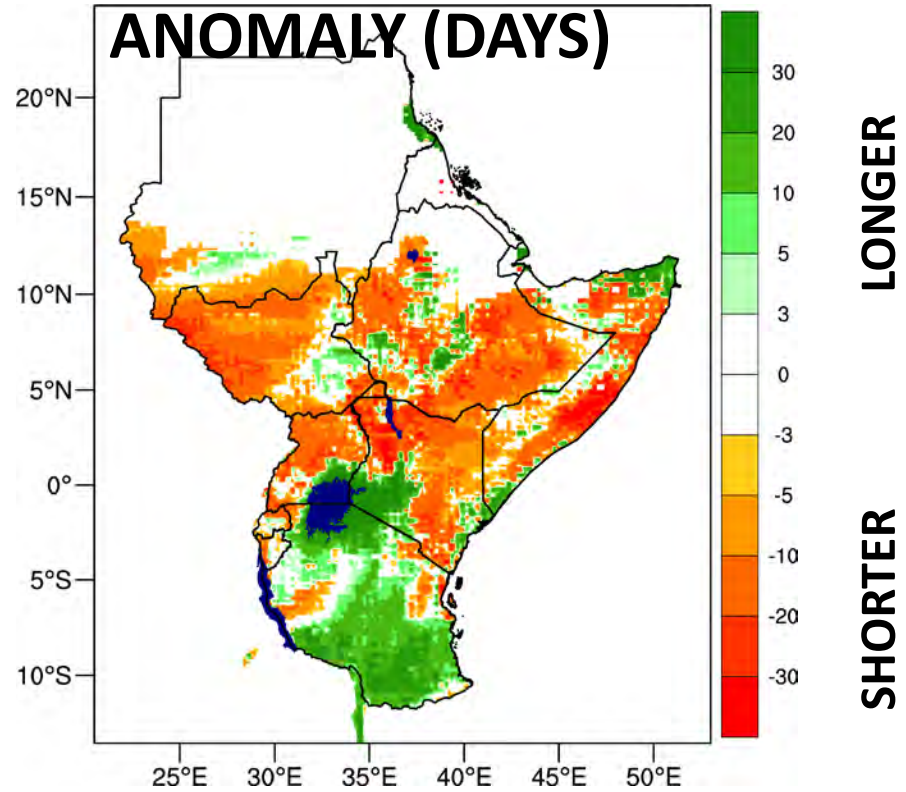
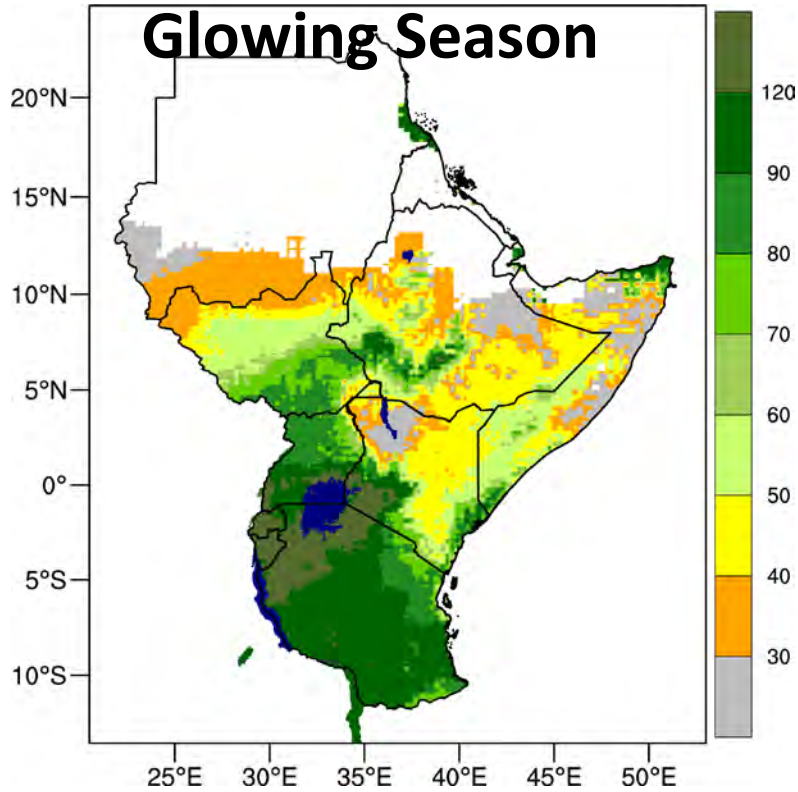
IGAD CLIMATE PREDICTION AND APPLICATIONS CENTRE

OND 2017 seasonal characteristics



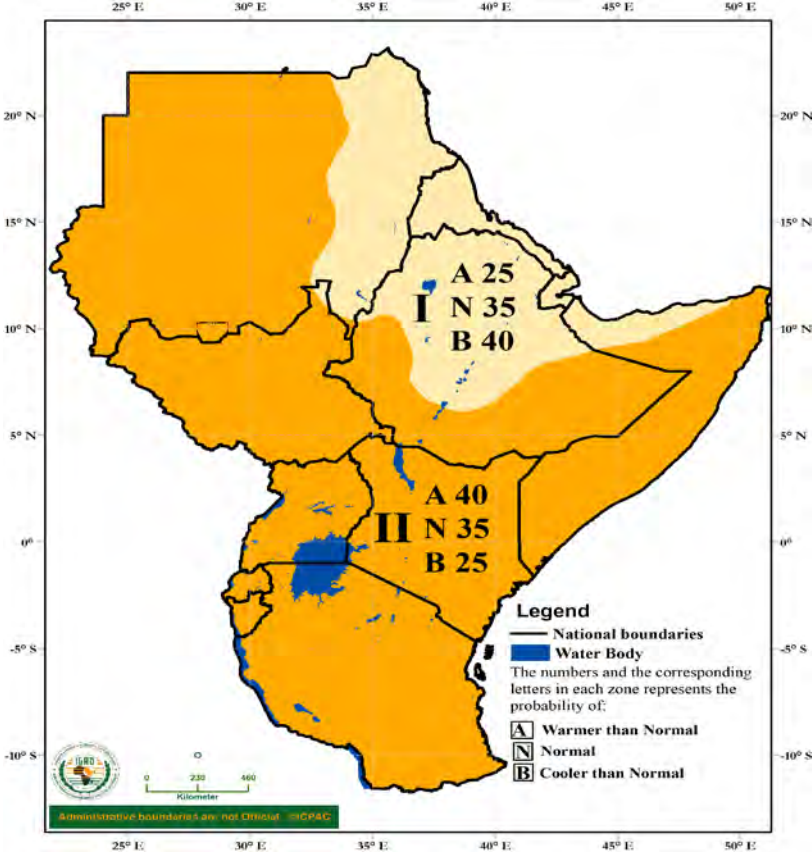
IGAD CLIMATE PREDICTION AND APPLICATIONS CENTRE

OND 2017 seasonal characteristics



IGAD CLIMATE PREDICTION AND APPLICATIONS CENTRE

CONSENSUS OND 2017 TEMPERATURE OUTLOOK



IGAD CLIMATE PREDICTION AND APPLICATIONS CENTRE

Sample 10 day bulletin

Dekad 14/2015

no: ICPAC/01/848

IGAD CLIMATE PREDICTION AND APPLICATIONS CENTRE (ICPAC)

10 DAY CLIMATOLOGICAL SUMMARY AND IMPACTS FOR DEKAD 13 (1 – 10 MAY) 2015 AND CLIMATE OUTLOOK FOR DEKAD 15 (21– 31 MAY) 2015

1.0 Highlights

- Rainfall activities were mainly reported over western parts of the equatorial sector and southern parts of the northern sectors of the Greater Horn of Africa (GHA) during the tenth dekad (1-10 April 2015);
- Wet conditions are likely to be experienced over the western and coastal parts of the equatorial sector; as well as southern parts of the northern Sector of Greater Horn of Africa

Seasonal Integrated Early Warning Bulletin

Integrated Regional Early Warning Bulletin: GHACOF 44
OCTOBER to DECEMBER 2016 rainfall season

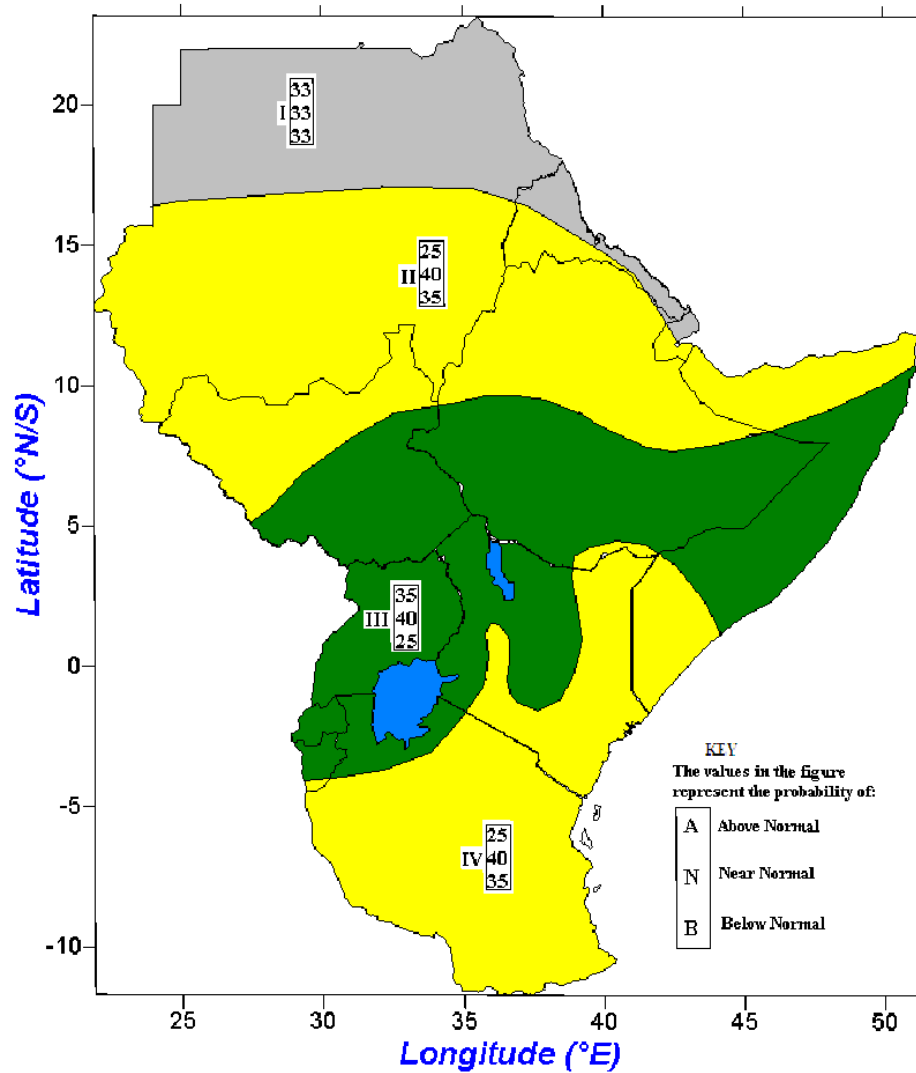


Target key User Community and communication Methods

2 Days consensus meeting is attended by Member states, UN, NGO's and Universities in the following sectors

- Health
 - Agriculture and food security
 - Livestock
 - Water and Hydropower
 - Disaster Risk Management
 - Media
- The Bulletins can be downloaded from ICPAC's Website

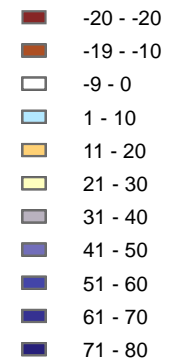
MAKING THE COF MEET THE WATER SECTOR USER NEEDS



Qualitative Seasonal Forecast interpretation

Areas with enhanced or depressed rainfall

GHA basins with GHACOF 41



Use of Hydrological Modelling in OND 2017 Season Forecast

- GeoSFM and NAM Rainfall runoff models for 5 out of six zones were ran from 2001 to end of July 2017 using rfe and Global PET.
- The model was run between August 2017 and January 2018 using NMME Seasonal Forecast Ensemble 10 and long term mean Evapotranspiration.
- Model results was used with output of the COF consensus to discuss impacts of the OND season on water and related sectors

Analysis Focused on The Following Aspects

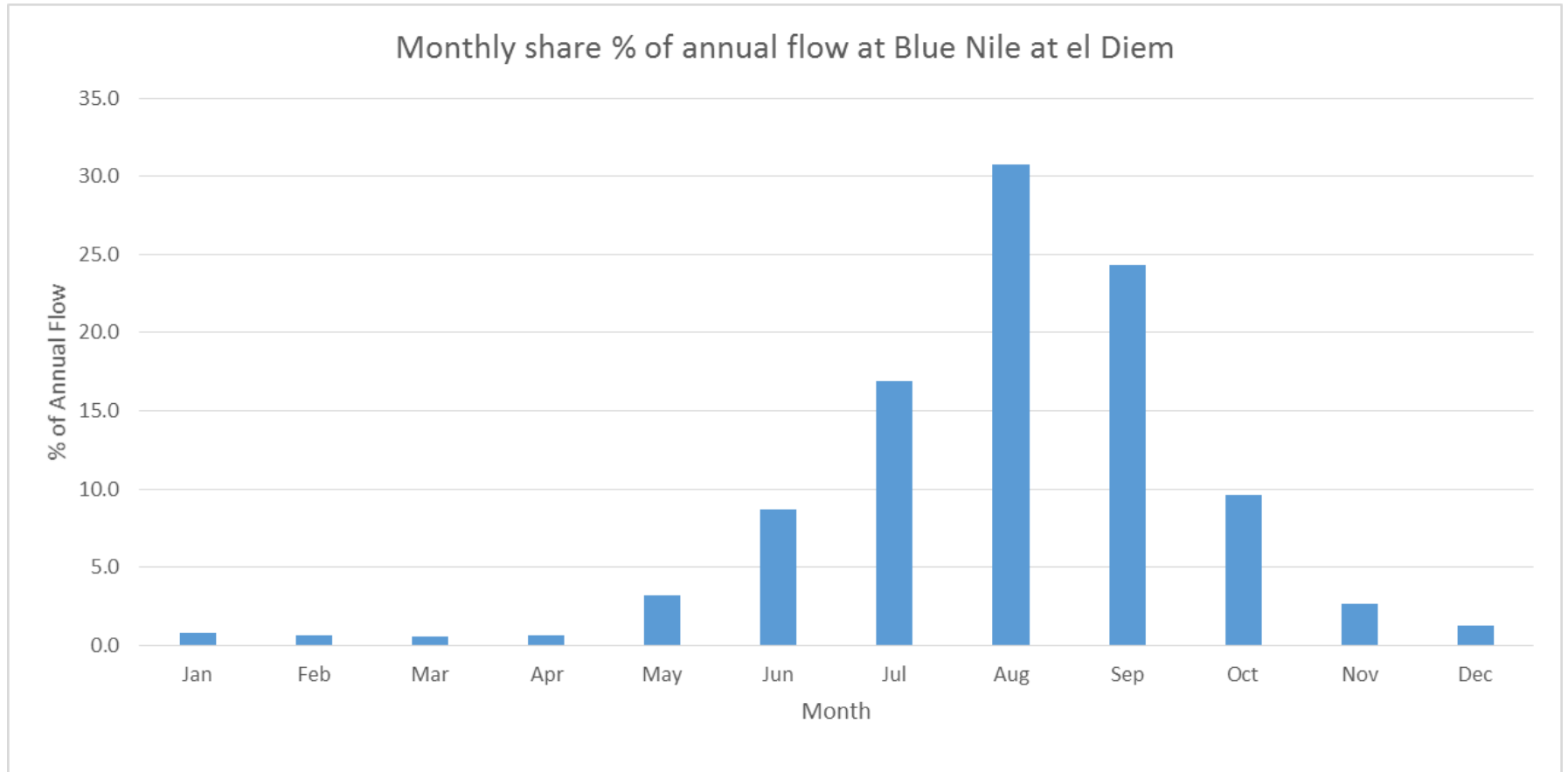
Water Resources availability strongly affected by climate variability

- Municipal Water sources
- Hydropower systems
- Other Streams which are lifeline human and livestock

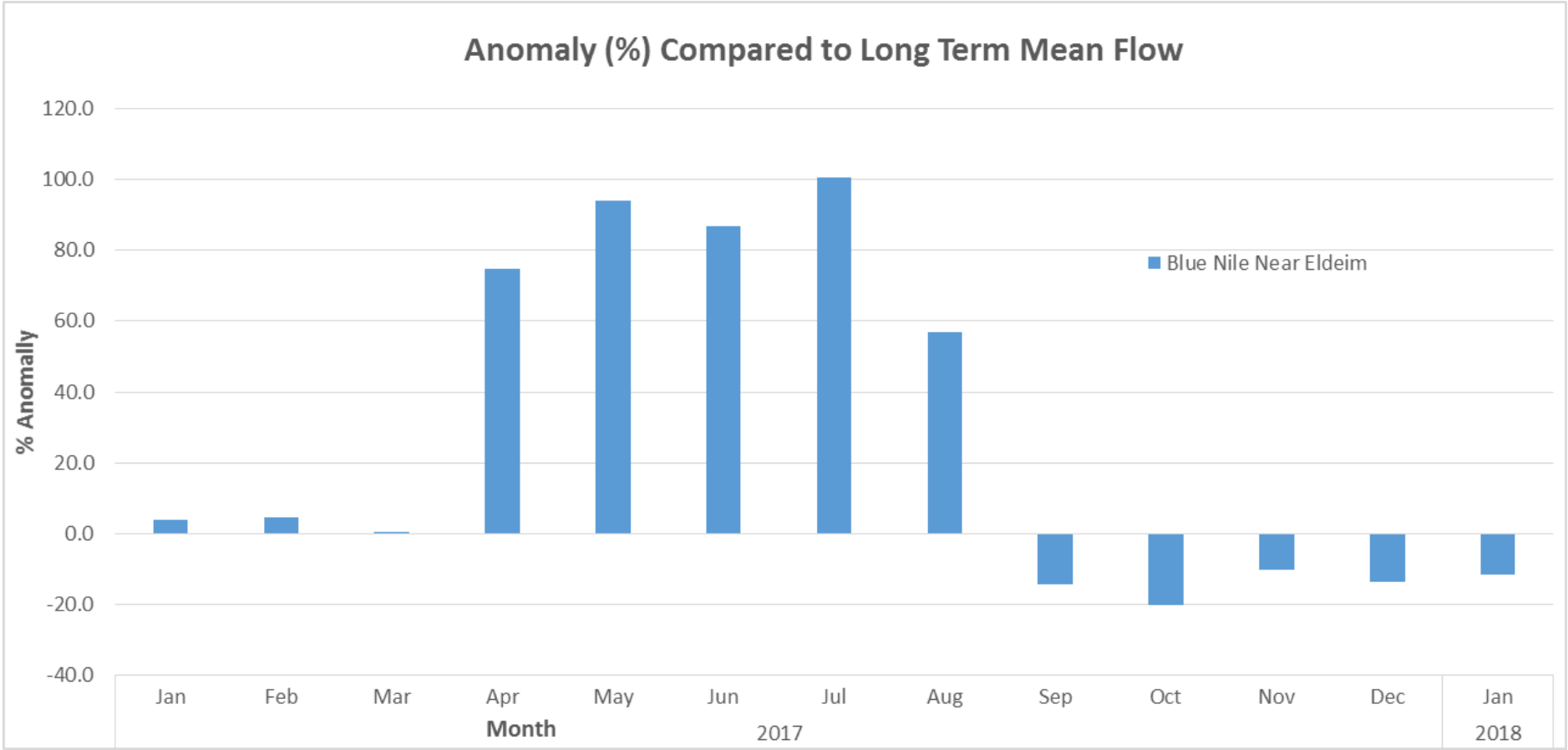
Disaster Risk Management

- Streams/rivers with history of flooding that causes loss of life and property

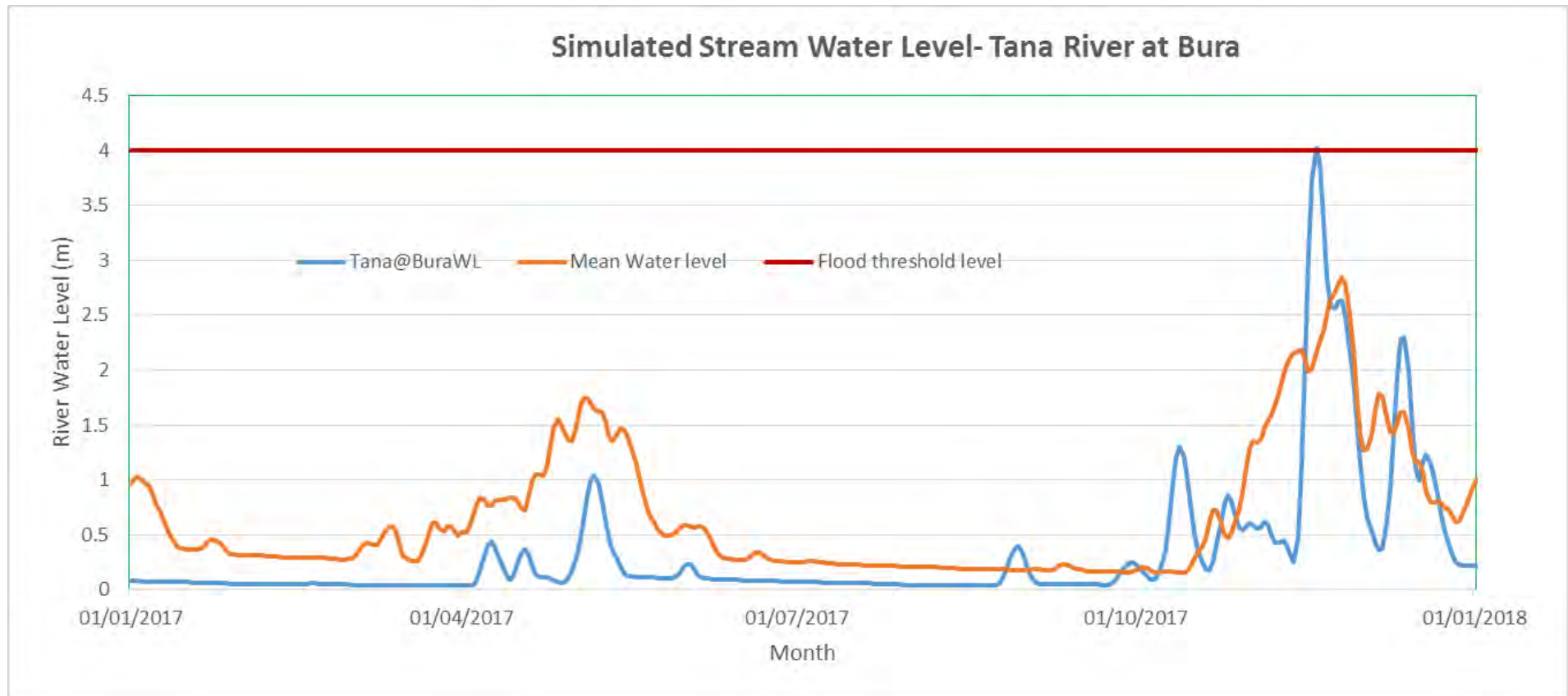
Blue Nile Near Eldeim- Sudan



Blue Nile Near El Deim



Simulated OND Water level- Tana River at Bura-Kenya



Challenges in Establishing the System

- Securing funds to hold the COF
- Sparseness of the hydro-meteorological networks observation
- Difficulty in tailoring the climate products for sector specific needs

Regional Challenges Facing Inclusion of Greater Hydrological Information

- Lack of hydromet data and difficulties in sharing whatever there is
- Probabilistic nature of climate forecast leads to low uptake by water sector and related staff
- Lack of an alternate forum to discuss water related issues

Best practice and top barriers which are relevant to the development of the HydroSOS

Best Practice

User meeting to discuss the outlook
Incorporate user needs explicitly

Top Barriers

Lack of data and/or sharing framework
Probabilistic nature of Outlook